AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A synchronous reluctance motor comprising:

a stator having a predetermined number of toothed stator magnetic pole portions wound by armature coils, and

a rotor rotatably supported at an inner peripheral surface of the stator and having a pair of slots formed in a circumferential direction of the rotor and extending along the inner periphery of the stator with a predetermined interval,

wherein the pair of slots includes an outer side slot formed at an outer periphery side of the rotor and an inner side slot formed at an inner side of the rotor, both the outer side slot and the inner side slot extend toward the outer peripheral surface of the rotor to form a rotor magnetic pole portion, and wherein a width of an effective magnetic path between the outer periphery of the rotor and the outer side slot is defined based on a width of a stator magnetic pole portion multiplied by a predetermined number in a range of 0.7 and 1.3; and

wherein

a phase number of the synchronous reluctance motor is m,

a ratio of a number of the stator magnetic pole portions relative to a number of the rotor magnetic pole portions is n,

a first opening angle is formed by lines connecting a rotational center of the rotor with two cross points, the two cross points formed by the outer periphery of the rotor and a center-line of a magnetic flux path between the outer side slot and the inner side slot,

a second opening angle is formed by center-lines of adjacent stator magnetic pole portions in the circumferential direction of the stator, and

wherein the first opening angle is determined based on the second opening angle multiplied by (n / 2m) and a second predetermined number.

2 and 3. (canceled).

4. (previously presented): The synchronous reluctance motor according to claim 3, wherein the second predetermined number is in a range of 4.3 and 4.6.

5. (previously presented): The synchronous reluctance motor according to claim 1, wherein a minimum inter slot distance in the circumferential direction of the rotor is determined based on the stator magnetic pole width multiplied by a second predetermined number.

6. (previously presented): The synchronous reluctance motor according to claim 5, wherein the second predetermined number is determined to be in a range of 1/3 and 1.

7. (previously presented): The synchronous reluctance motor according to claim 1, wherein a permanent magnet is disposed in each of the outer side slot and the inner side slot formed in the rotor.

8. (previously presented): The synchronous reluctance motor according to claim 7, wherein the permanent magnet disposed in the outer side slot is regarded as an outer side permanent magnet,

the permanent magnet disposed in the inner side slot is regarded as an inner side permanent magnet,

in the circumferential direction of the rotor, the portions of the inner side permanent magnet and the outer side permanent magnet facing each other are magnetized to have different magnetic poles,

a first total magnetic flux of the outer side permanent magnet is determined to be larger than or equal to a second total magnetic flux of the inner side permanent magnet when the center-line of the outer side slot and the inner side slot in a circumferential direction of the rotor is adjacent one or more of the center-lines of the stator magnetic pole portions in the circumferential direction of the stator, and when the armature coils winding around the stator magnetic pole portions are not electrically fed.

9. (currently amended): The synchronous reluctance motor according to claim ~~8~~16, wherein the first total magnetic flux and the second total magnetic flux are determined by

changing shapes and sizes of the outer side permanent magnets and the inner side permanent magnets depending on locations thereof in the radial direction of the rotor.

10. (currently amended): The synchronous reluctance motor according to claim ~~8~~16, wherein the outer side permanent magnets and the inner side permanent magnets are constructed of a plurality of permanent magnets uniformly formed in size and shape, the first total magnetic flux and second total magnetic flux being determined by changing the number of unit permanent magnets disposed in the outer side slot and the inner side slot.

11. (currently amended): The synchronous reluctance motor according to claim ~~8~~16, wherein each of the outer side slot and the inner side slot has a space defined between the permanent magnets disposed in the slots and an inner peripheral surface of the slots in the radial direction of the rotor, the space is filled with non-magnetic materials, and the first total magnetic flux and second total magnetic flux are determined by changing sizes of the space in the radial direction of the rotor.

12-15 (canceled).

16. (new): A synchronous reluctance motor comprising:

a stator having a predetermined number of toothed stator magnetic pole portions wound by armature coils, and

a rotor rotatably supported at an inner peripheral surface of the stator and having a pair of slots formed in a circumferential direction of the rotor and extending along the inner periphery of the stator with a predetermined interval,

wherein the pair of slots includes an outer side slot formed at an outer periphery side of the rotor and an inner side slot formed at an inner side of the rotor, both the outer side slot and the inner side slot extend toward the outer peripheral surface of the rotor to form a rotor magnetic pole portion, and wherein a width of an effective magnetic path between the outer periphery of the rotor and the outer side slot is defined based on a width of a stator magnetic pole portion multiplied by a predetermined number in a range of 0.7 and 1.3,

wherein a permanent magnet is disposed in each of the outer side slot and the inner side slot formed in the rotor,

wherein the permanent magnet disposed in the outer side slot is regarded as an outer side permanent magnet,

the permanent magnet disposed in the inner side slot is regarded as an inner side permanent magnet,

in the circumferential direction of the rotor, the portions of the inner side permanent magnet and the outer side permanent magnet facing each other are magnetized to have different magnetic poles, and

a first total magnetic flux of the outer side permanent magnet is determined to be larger than or equal to a second total magnetic flux of the inner side permanent magnet when the center-line of the outer side slot and the inner side slot in a circumferential direction of the rotor is adjacent one or more of the center-lines of the stator magnetic pole portions in the

circumferential direction of the stator, and when the armature coils winding around the stator magnetic pole portions are not electrically fed.